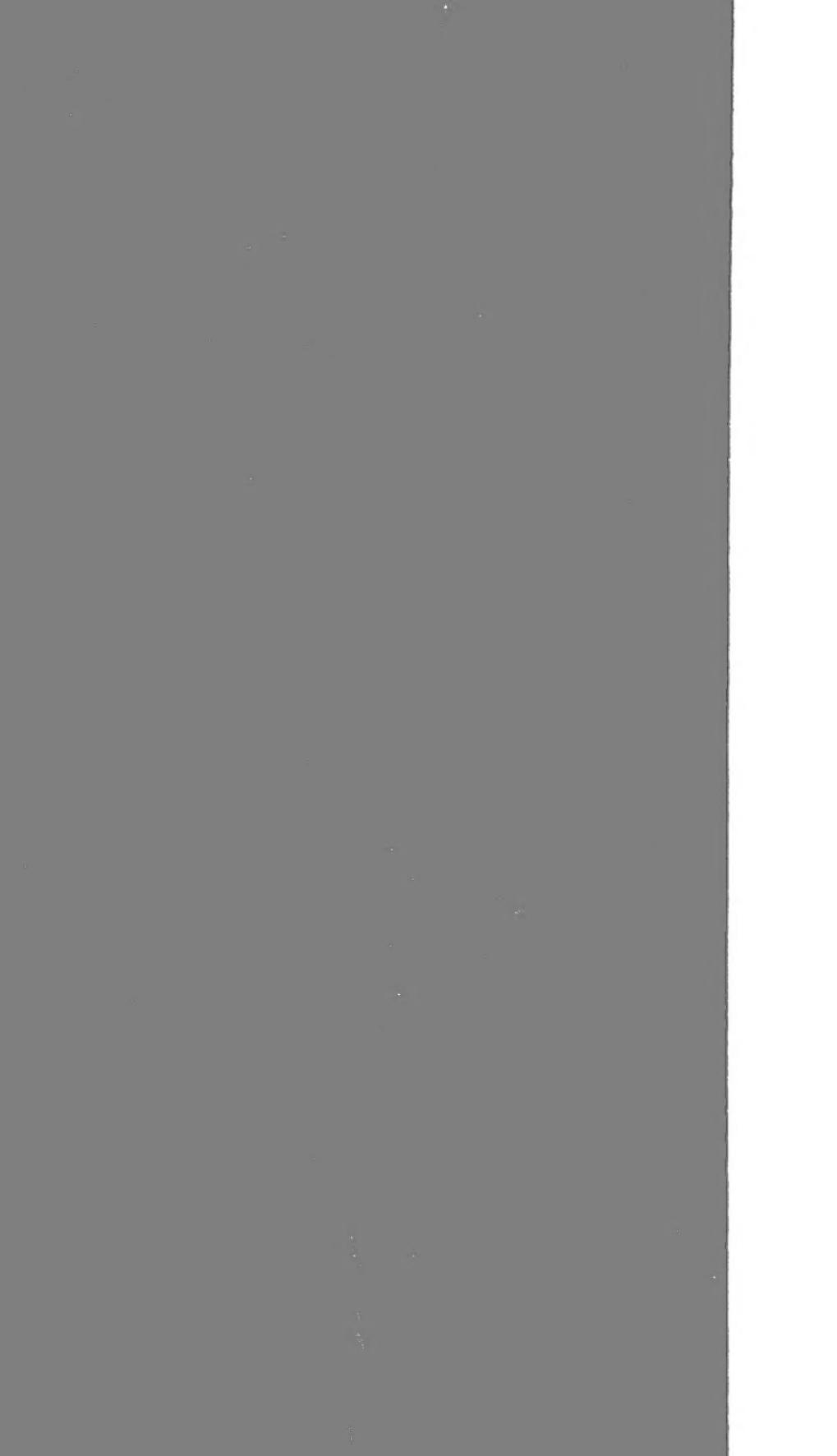


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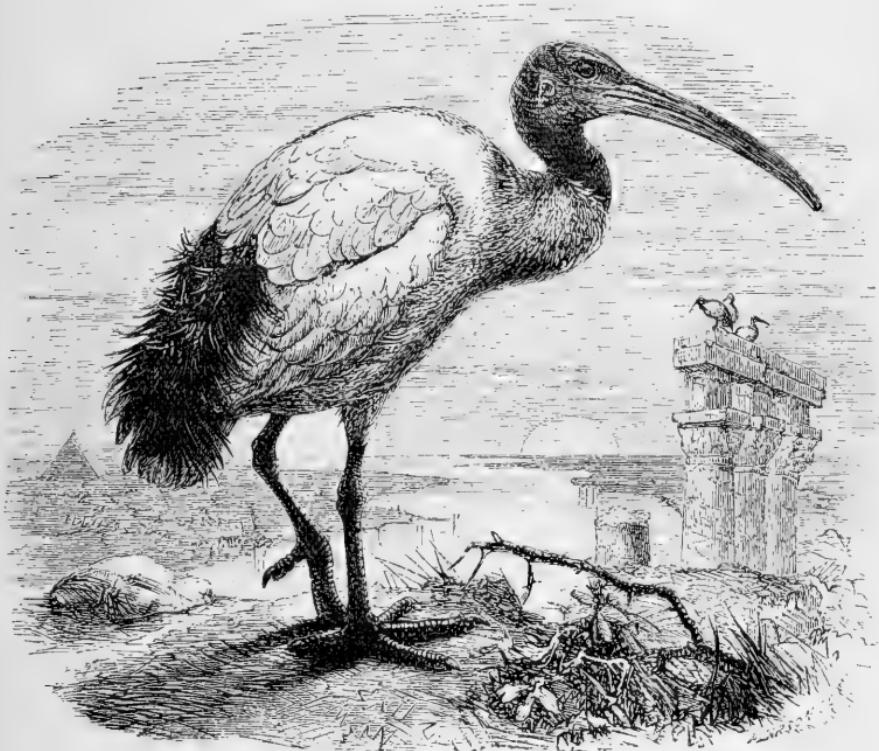
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THE WILLUGHBY SOCIETY.

FORSTER'S
CATALOGUE OF THE ANIMALS OF
NORTH AMERICA,
OR
FAUNULA AMERICANA.



EDITED BY

PHILIP LUTLEY SCLATER, M.A., PH.D., F.R.S.

LONDON:

1882

Cambridge :
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AT THE UNIVERSITY PRESS.

PREFACE.

JOHANN REINHOLD FORSTER, the well-known Naturalist, was born at Dirschau in Prussia in 1729, and came to England along with his son George Forster, in order to accompany the circumnavigator Cook on his second voyage.

During his residence in England, before the departure of Cook's Expedition (which took place on the 9th of April, 1772), Forster translated and published an English edition of Kalm's "Travels into North America," in the prefaces to which (Vol. i. p. xv. and Vol. iii. p. vii.) will be found allusions to a projected "American Fauna and Flora." But the present list, as acknowledged by the author himself in his preface, was planned and indeed commenced by Pennant, who in his "Literary Life" (p. 14) writes, "In this year (1771) doctor Forster published a catalogue of the animals of North America. I had begun the work by a list of the quadrupeds, birds and fishes. Doctor Forster added all the rest; and afterwards, in a new edition, favored the world with a most comprehensive *Flora* of that vast country, with a catalogue of insects, and the directions for preserving natural curiosities. My part in this work is of so little merit, that it need not be boasted of. I only lay claim to my proper right."

The memoir thus projected by Pennant and completed and published by Forster is of much interest, as being one of the earliest authorities on North American Zoology. It is quoted by Forster himself in his paper on the Birds of Hudson's Bay as his "Faunula Americana." This name is, therefore, given as its second title.

The "Mr B." of the catalogue who, as mentioned in Forster's Preface, formed a collection "in his voyage to Newfoundland" is believed by Prof. Newton to be the Mr Bolton, of Halifax, mentioned by Latham and Lewin, and the Lancashire lady who possessed a "most select and numerous Collection of American Animals" (Mus. Bl.) to be Mrs Anna Blackburn, of Orford, near Warrington, as referred to in Pennant's Arctic Zoology, Vol. I. (advertisement).

Copies of the original pamphlet are scarce. The reprint has been made from an example in the possession of Prof. Newton.

P. L. S.

11, HANOVER SQUARE,

March 21st, 1882.

A
CATALOGUE
OF THE
ANIMALS
OF
NORTH AMERICA.
CONTAINING,

An Enumeration of the known QUADRUPEDS, BIRDS,
REPTILES, FISH, INSECTS, Crustaceous and
Testaceous ANIMALS; many of which are New, and
never described before.

To which are added,

SHORT DIRECTIONS
FOR
COLLECTING, PRESERVING, and TRANSPORTING,
all Kinds of
NATURAL HISTORY CURIOSITIES.

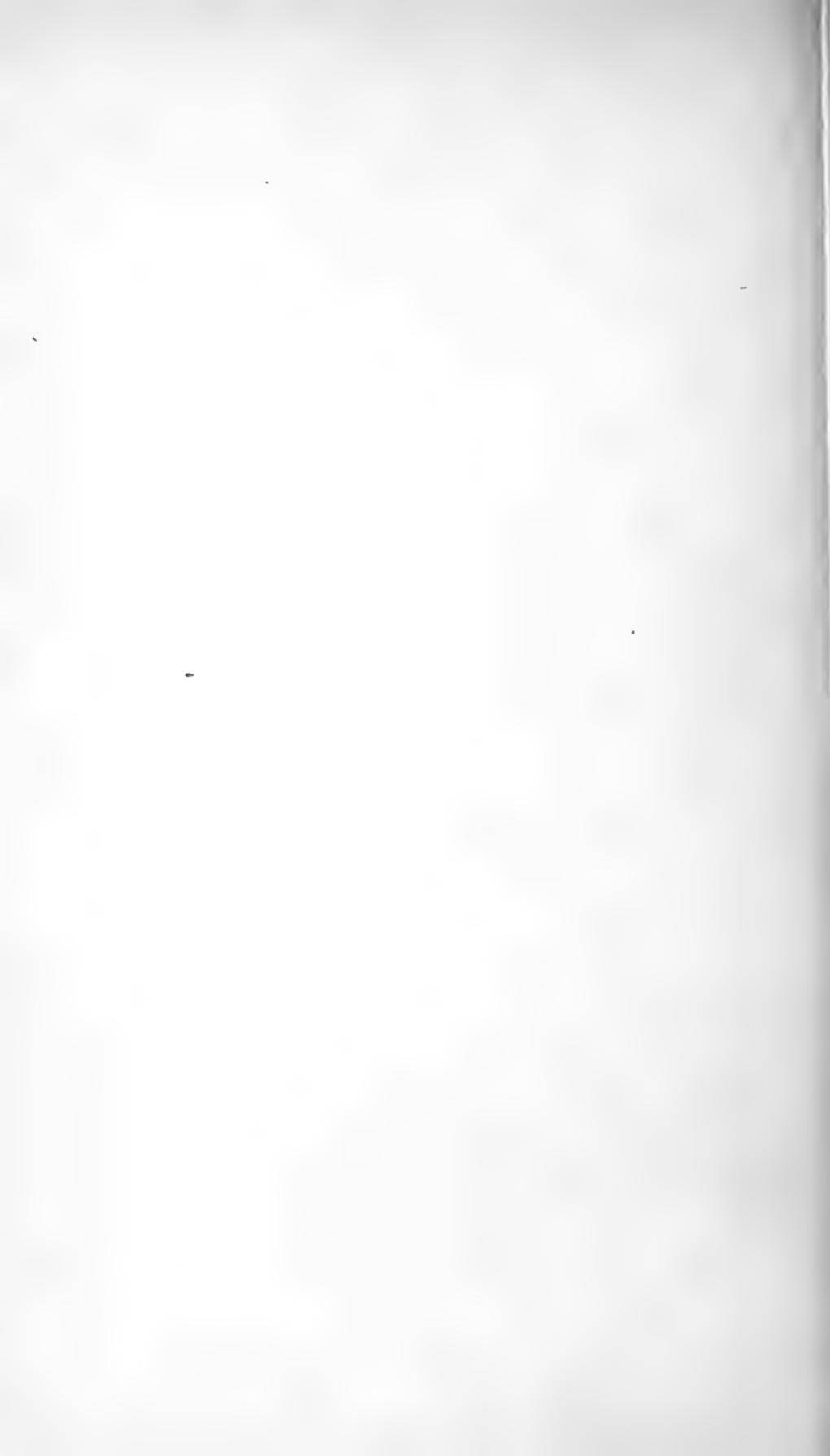
By JOHN REINHOLD FORSTER, F.A.S.

*Non ad unam Natura formam opus suum præstat; sed in ipsa
varietate se jactat.*

SENECA, Quæst. Nat. VII. 27.

LONDON:
Sold by B. WHITE, at Horace's Head, in Fleet-Street.

M.DCC.LXXI.



Little Falcon.
Falco Sparverius, LINN.



M. Griffith Pinx:

R. Murray Sc:

T O

MARMADUKE TUNSTALL, Esq.

Dear S I R,

THE repeated favours *You* were so kind to bestow upon me, in the compass of a short acquaintance, and the zeal with which *You* promote the great cause of Natural History; encouraged me to prefix *Your* Name to this Publication, and give me an opportunity, thus publicly, to acknowledge the assistance *Your* benevolent and generous friendship favoured me with.

Nothing is left to me, but the simple mention of thanks; and my sincere wishes for *Your* health, happiness, and the enjoyment of every intellectual and moral blessing. I am, with the truest regard,

Dear S I R,

your most obliged,

obedient,

humble Servant,

*London, April
24, 1771.*

JOHN REINHOLD FORSTER

To the R E A D E R.

I Had hinted in the Preface to the third volume of *Kalm's Travels*, that I could publish but an imperfect and small catalogue of *North American* animals; and therefore declined to give it. Since that time, I have been pressed by some worthy friends to publish that catalogue, such as it is; and what is still more, I have been favoured with ample materials by a Gentleman, who is forming a collection for a Natural History of *North America*, and hopes by this to incite the inquisitive and learned resident in that country, to search, and to transmit to their friends in *England*, the production of their several provinces. The Zoology of the first four classes of animals in *Great Britain*, has been very accurately and compleatly published; that of the country of the descendants of *Great-Britain* ought with most propriety to follow, as it interests the Mother Country most. These reasons had a great weight with me; and I offer this small catalogue merely as an essay towards forming a more compleat Natural History of that extensive continent. To instruct the Collectors, I have added to this list some short directions for the best method of preserving and transporting the various subjects of Natural History.

The Quadrupeds of this list are referred to the Synopsis of Quadrupeds of Mr. *Pennant*; the Birds, Fish, Reptiles, Insects, and Crustacea, to *Linnæus*, *Brisson*, Mr. *Edwards*, and

To the R E A D E R.

and *Catesby*; some few excepted, which are referred to the *Planches enluminées*, published at *Paris*, and marked here *Pl. enl.* so as *Catesby* with a single *C.* and those which are common to *Great Britain* and *America*, to the *British Zoology*.

The Animals which have recently been discovered in *North America*, or overlooked by Mr. *Catesby*, are distinguished by *N. S.* marking a *New Species*; and by *B.* and *Mus. Bl.* The first authority is from a Collection formed by a Gentleman in his voyage to *Newfoundland*; the second, from a most select and numerous Collection of *American Animals*, belonging to a Lady in *Lancashire*.

The New Species, in the Catalogue of Birds, I had leave to insert here from Mr. *Pennant's* manuscript; and those of Insects are taken from my own manuscript descriptions of such Insects as were not described by Dr. *Linnæus*.

The print prefixed here represents an elegant little Falcon, drawn and engraved from a fine specimen lately brought over from *North America*.

N. B. *The Animals marked E are of European Origin; having been introduced there by the Spaniards or English, after the discovery of the New World: and those marked Eur. are originally natives of both Continents.*



CLASS I. QUADRUPEDS.

DIV. I. HOOFED.

SECT. I. WHOLE HOOFED.

Genus.			syn. quad.
I. HORSE	Generous Ass	<i>E.</i>	N° 1 3

SECT. II. CLOVEN HOOFED.

II. SHEEP	Common	<i>E.</i>	8
III. GOAT	Domestic	<i>E.</i>	p. 14
IV. DEER	Elk, or Moose,	<i>Eur.</i>	N° 35
	Rein	<i>Eur.</i>	36
	Stag	<i>Eur.</i>	38
	Virginian	N. S.	39
	Roe?		43
V. HOG	Common	<i>E.</i>	54

DIV. II. DIGITATED QUADRUPEDS.

VI. DOG	Faithful	<i>E.</i>	N° 110
	Wolf	<i>Eur.</i>	111
	Fox	<i>Eur.</i>	112
	Arctic	<i>Eur.</i>	113
	Grey		114
	Silvery		115
VII. CAT	Brown		129
	Common	<i>E.</i>	133
	Lynx	<i>Eur.</i>	135
	Bay Lynx	N. S.	136
			VIII.

VIII. BEAR	Black Polar Wolverene Raccoon	<i>Eur.</i> <i>Eur.</i>	138 139 140 141
IX. BADGER	American	N. S?	143
X. OPOSSUM	Virginian		144
XI. WEESEL	Stoat Pine Martin Fisher Pekan and Vison Striated Skunk	<i>Eur.</i> <i>Eur.</i> N. S.	N° 151 155 157 166 167
XII. OTTER	Greater Lesser Sea	<i>Eur.</i> <i>Eur.</i>	173 174 175
XIII. HARE	Common Alpine Rabbit	<i>Eur.</i> <i>Eur.</i> E.	183 184 186
XIV. BEAVER	Castor Musk	<i>Eur.</i>	190 191
XV. PORCUPINE	Canada		196
XVI. MARMOT	Maryland Quebec	N. S.	198 199
XVII. SQUIRREL	Common α Hudson's Bay Grey Black β Cat Ground Flying β hooded	<i>Eur.</i> <i>Eur.</i>	206 209 210 216 221
XVIII. RAT	Black Brown? Water Mouse	E. <i>Eur.</i> E.	226 227 228 229
		A 4	Field

	Field Short-tailed	<i>Eur.</i> <i>Eur.</i>	230 233
XIX. MOLE	♂. yellow Radiated Long-tailed Brown	N. S.	p. 312 Nº 243 244 245
XX. WALRUS	Arctic		Nº 263
XXI. SEAL	Common Great Rough Hooded Harp Little Ursine Leonine	<i>Eur.</i> <i>Eur.</i> N. S. N. S. N. S. N. S. N. S.	265 266 267 268 269 270 271 272
XXII. MANATI	Manati		273
XXIII. BAT	New York Long haired	N. S. N. S.	p. 283 367

C L A S S II. B I R D S.

D I V. I. L A N D B I R D S.

S E C T. I. R A P A C I O U S.

I. VULTURE. Carrion. V. aura. 122. C. I. 6.

II. FALCON	Bald Eagle Sea Ringtail Black-bellied White Osprey	F. leucocephalus. C. I. 1. F. ossifragus. in exhibitions F. Fulvus. <i>Edw.</i> I. N. S. <i>Du Pratz</i> , II. 75. F. Haliaëtus. C. I. 2.	Gentil
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Gentil Falcon	F. gentilis <i>Mr. B.</i>
Goshawk	F. palumbarius. <i>Lawson</i>
Ashcoloured	<i>Edw.</i> 53.
Sacre	<i>Mr. B. de Buffon</i>
Winter	N. S. <i>Mus. Bl.</i>
Dusky	<i>Edw.</i> 3. 4.
Rough-footed	N. S. <i>Mr. B.</i>
Chocolate	N. S. <i>do.</i>
Marsh	<i>Edw.</i> 291.
Buzzard	F. <i>Buteo. Mr. B.</i>
White-rump'd	F. <i>Hudsonius. Edw.</i> 107.
Fork-tail	F. <i>furcatus. C. I.</i> 4.
Pigeon	F. <i>columbarius. C. I.</i> 3.
Little	F. <i>sparverius. C. I.</i> 5.

*

III. OWL	Great	Strix <i>bubo. Edw.</i> 60
	Short-eared	<i>Br. Zool. Mus. Bl.</i>
	Red	St. <i>Afio. C. I.</i> 7.
	Mottled	N. S. <i>Mus. Bl.</i>

* *

Snowy	St. <i>nyctea. Edw.</i> 61
Barred	N. S. <i>Mus. Bl.</i>
Canada	<i>Br. I.</i> 518.
Brown	<i>Br. Zool. Mr. B.</i>
White	<i>ib.</i>
Hawk	<i>Edw.</i> 62.
Little.	<i>Mus. Bl. Br. Zool.</i>

IV. SHRIKE	Cinereous.	Lanius <i>excubitor. C. app.</i>
	Crested.	L. <i>Canadensis</i>
	Louisiane.	<i>Pl. enl.</i> 397.

S E C T. II. PIES.

V. PARROT	Caroline.	Psittacus <i>Carolinensis. C. I.</i> 11.
	Illinois.	<i>Ps. pertinax. Edw.</i> 234. <i>Br.</i>

VI. CROW	Raven.	<i>Br. Zool. Mr. B.</i>
	Carrion.	<i>B. Zool. Mus. Bl.</i>
	Magpie	<i>Br. Zool. Edw.</i> p. 126.
	Cinereous	C. <i>Canadensis</i>
	Blue.	C. <i>cristatus. C. I.</i> 15.

VII.

VII. ORIOLE	Redwing Baltimore Spurious Brown-headed	Oriolus Phœniceus. O. Baltimorus O. Spurius N. S. <i>Mr Kuckahn</i>	C. I. 13 48 49
VIII. GRACULE	Shining	Gracula quiscula	C. I. 12
IX. CUCKOO	Caroline	Cuculus Americanus.	C. I. 9.
X. WOODPECKER	White-billed. Buff-cheeked Gold-wing Scarlet Red-bellied Spotted Hairy Yellow-bellied Little Black Three-toed	Picus principalis P. pileatus P. auratus P. erythrocephalus P. Carolinus <i>Br. Zool.</i> I. 178. <i>Mus. Bl.</i> P. villosus P. varius P. pubescens <i>Albin</i> P. tridactylus. <i>Edw.</i>	C. I. 16 C. I. 17 18 20 19 ib. 19 21 ib.
XI. NUTHATCH.	Greater Lesser Canada	<i>Br. Zool.</i> <i>Br. III.</i> 593	22 ib.
XII. KINGFISHER	Great Louisiane	Alcedo alcyon <i>Pratz.</i> II. 82	69
XIII. CREEPER	Bahama Common	Certhia flaveola <i>Br. Zool. Mus. Bl.</i>	59
XIV. HUMMER	Red-throated	Trochilus columbris	C. I. 65

S E C T. III. GALLINACEOUS.

XV. TURKY	Wild	Meleagris Gallopavo.	
XVI. GROU'S	Ruffed Pinnated Long-tailed Spotted White	Tetrao umbellus T. cupido T. Phasianellus T. Canadensis T. Lagopus	<i>Edw.</i> 248 C. III. 1. <i>Edw.</i> 117 <i>Edw.</i> 71, III. <i>Edw.</i> 72
	Partridge Quail?	T. Virginianus T. Mexicanus	C. III. 12 S E C T.

S E C T. IV. COLUMBINE.

XVII. PIGEON	Passenger	<i>Columba migratoria</i>	C. I. 23
	Caroline	<i>C. Carolinensis</i>	24
	White-crowned	<i>C. leucocephala</i>	25
	Canada	<i>C. canadensis</i>	
	Ground	<i>C. Passerina</i>	24

S E C T. V. PASSERINE.

XVIII. THRUSH	Mimic	<i>Turdus polyglottos</i>	27
	Ferruginous	<i>T. rufus</i>	28
	Fieldfare	<i>T. migratorius</i>	29
	Red-leg'd	<i>T. plumbeus</i>	30
	Black	<i>Br. II.</i>	245
	Little	<i>Edw. 296</i>	C. I. 31
	Golden-crowned	<i>Motacilla auro-capilla</i>	<i>Edw. 252</i>

XIX. STARE	Crescent	<i>Alauda magna</i>	C. I. 33
	New York	<i>N. S. Mus. Bl.</i>	

XX. CHATTERER	Prib.	<i>Ampelis garrulus.</i> C. I. 46. <i>Edw.</i>
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XXI. GROSBEAK	Crossbill	<i>Br. Zool.</i>	<i>Edw. 303</i>
	Pine	<i>Br. Zool. IV.</i>	<i>Edw. 123, 124</i>
	Crested	<i>Loxia cardinalis</i>	C. I. 38
	Mexican	<i>L. Mexicana</i>	<i>Mus. Bl.</i>
	Roseate	<i>L. Ludoviciana</i>	
	Spotted	<i>N. S. Mus. Bl.</i>	
	Mississipi		
	Dominican	<i>L. Dominicana</i>	
	Canada	<i>L. Canadensis</i>	
	Black	<i>L. nigra</i>	C. I. 68
	Blue	<i>L. caerulea</i>	39
	Violet	<i>L. violacea</i>	40
	Fantail	<i>Pl. enl.</i>	380
	Grey	<i>Pl. enl.</i>	393
	Red-headed	<i>N. S. Mr. Kuckahn</i>	

XXII. BUNTING	Snow	<i>Emberiza nivalis</i>	<i>Edw. 126</i>
	Winter	<i>E. hyemalis</i>	C. I. 36
	Rice	<i>E. oryzivora</i>	C. I. 14. <i>Edw. 291</i>

Painted

	Painted Louisiiane Blue?	E. Ciris C. 44 <i>Edw.</i> 130. 273 E. Ludoviciana. <i>Br.</i> III.	298
XXIII. TANAGRE	Blue Green Bishop Red	Tanagra cyanea Motacilla guira <i>Edw.</i> 351. <i>Mus Bl.</i> T. Episcopus. Du Pratz. II. 94 T. rubra	C. I. 45 43 42 C. I. 56
XXIV. FINCH	Towhe Golden Orange Mountain Little Cow-pen Bahama Caroline	Fringilla Erythrophthalma Fr. tristis Fr. zena Fr. montana C. I. 35 34 Fr. bicolor 37 <i>Pl. en.</i> 181. 223? White-throated <i>Edw.</i> 304 Ferruginous <i>Edw.</i> 354. <i>Br.</i> III. 296 Crimson head N. S. <i>Mus. Bl.</i> Fasciated N. S. <i>D°.</i> Greater red-poll. <i>Br. Zool.</i> <i>Mus. Bl.</i>	34 43 42 <i>Edw.</i> 269
XXV. FLY-CATCHER	Tyrant Fork tail Chattering Crested Black-cap Cinereous Red-eyed Cat Canada Blue Brown	Lanius tyrannus Muscicapa tyrannus C. I. 50 Musc. crinita C. I. 52 C. I. 53 Musc. virens M. olivacea C. I. 54 M. Carolinensis 66 M. Canadensis Motacilla sialis C. I. 47 C. I. 54	C. I. 55
XXVI. LARK	Shore Red Calandre	Alauda alpestris C. I. 32 <i>Br. Zool.</i> <i>Edw.</i> 297 <i>Edw.</i> 268	
XXVII. WAGTAIL	Redstart Yellow breast Black throat Yellow throat. Yellow rump.	Muscicapa ruticilla. C. I. 67 Turdus trichas. <i>Edw.</i> 237 Motacilla Canadensis. <i>Edw.</i> 252 C. I. 62. <i>Edw.</i> 255	Red

Red poll	M. petechia. <i>Edw.</i> 256
Black poll	
Pine	Certhia pinus. C. I. 61.
Crowned	M. coronata. <i>Edw.</i> 298
Golden wing	M. chrysoptera. <i>Edw.</i> 299.
Green	<i>Edw.</i> 300
Pied	<i>Edw. ib.</i> M. varia
Bloodyside	M. Pensylvanica. <i>Edw.</i> 301
Cerulean	M. cerulea. <i>Edw.</i> 302
Worm-eater.	<i>Edw.</i> 305
Yellow	<i>Br.</i> III. 492
Louisiane	500
Great	508
Quebec	M. Icterocephala
Yellow-tailed?	<i>Edw.</i> 257
Spotted	<i>Edw.</i> 257
Cinereous	<i>Br.</i> III. 524
Olive	<i>Pl. enl.</i> 58
Ruby-crowned	M. calendula. <i>Edw.</i> 254
Golden-crested.	<i>Br. Zool.</i> C. App.
Yellow	<i>Br. Zool.</i> II. 266. <i>Edw.</i>
Wren	<i>Mus. Bl.</i>

XXVIII. TITMOUSE	Crested	Parus bicolor. C. I. 57
	Hooded	C. I. 60
	Virginian	V. Virginianus. C. I. 58
	American	P. Americanus 64
	Canada	<i>Br.</i> III. 553.
	Colemouse	<i>Br. Zool.</i> Mr. B.

XXIX. SWALLOW	House	<i>Br. Zool.</i> Mr. B.
	Martin	<i>ib.</i> <i>Mus. Bl.</i>
	Sand	<i>ib.</i> C. App.
	Swift	<i>ib.</i> Lawson
	Purple	Hirundo purpurea. C. I. 51
	Canada	H. subis. <i>Edw.</i> 120
	Aculeated	H. pelasgia. C. III. 8

XXX. GOATSUCKER.	Common	<i>Br. Zool.</i> C. I. 8
	Lesser	Capr. minor. C. III. 16.

DIV. II. WATER FOWL.

SECT. VI. CLOVEN-FOOTED.

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XXXI. HERON.	Hooping Canada Brown	Ardea Americanus. A. Canadensis. A. Herodias.	C. I. 75 <i>Edw.</i> 133 <i>Edw.</i> 136
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Common	<i>Br. Zool.</i> <i>C. App.</i>
Violet	A. violacea. C. I. 79
Blue	A. cœrulea 76
Cinereous	<i>Edw.</i> 135
Great white	A. alba. <i>Mus. Bl.</i>
Little white	A. æquinoctialis. C. I. 77
Green	A. vires. 80
Bittern	A. Hudsonias. <i>Edw.</i> 135
Minute	<i>Br. Zool.</i> <i>Mus. Bl.</i>
Caroline	C. I. 78
Green head	<i>Mr. Kuckahn</i>

XXXII. IBIS	Wood Scarlet White Brown	Tantalus loculator.	C. I. 81
		T. ruber	84
		T. albus	82
		T. fuscus	83

XXXIII. CURLEW	Eskimaux	N. S. <i>Mr. B.</i>
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XXXIV. WOODCOCK.	American Snipe Jack Godwit Red Great Nodding Spotted	<i>Mus. Bl.</i> <i>Br. Zool.</i> <i>Mus. Bl.</i> <i>ib.</i> <i>Mus. Bl.</i> <i>ib.</i> <i>C. App.</i> <i>ib.</i> <i>Edw.</i> 138 <i>Scolopax fedoa.</i> <i>Edw.</i> 137 N. S. <i>Mr. B.</i> <i>Mus. Bl.</i>
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XXXV. SAND-PIPER	Turnstone Common Spotted Cinereous	Tringa interpres <i>Edw.</i> 141 <i>Br. Zool.</i> <i>Mr. Kuckahn</i> <i>ib.</i> <i>Edw.</i> 270 <i>ib.</i> <i>Mr. B.</i>
		Knot

	Knot Redshank Grey Pl. Purre Little Glossey Green	<i>ib.</i> <i>Edw.</i> 276 <i>ib.</i> <i>C. App.</i> <i>ib.</i> <i>C. App.</i> <i>ib.</i> <i>Mus. Dl.</i> N. S. <i>Mr. B.</i> N. S. <i>Br. Zool.</i> <i>Mr. Kuckahn.</i>
XXXVI. PLOVER	Green Pie Noisy Golden Lark Sanderling	<i>Br. Zool.</i> <i>Mus. Bl.</i> <i>ib.</i> C. I. 85 <i>Charadrius vociferus.</i> C. I. 71 <i>Ch. apricarius</i> <i>Edw.</i> 140 <i>Br. Zool.</i> <i>Mus. Bl.</i> <i>ib.</i> <i>Mus. Bl.</i>
XXXVII. RAIL	Clapper Red-breasted	<i>Mus. Bl.</i> <i>Edw.</i> 279
XXXVIII. WATER-HEN	Caroline Common	<i>Rallus Carolinus.</i> <i>Edw.</i> 144. C. I. 70. <i>Br. Zool.</i> <i>Mus. Bl.</i>

S E C T. VII. With PINNATED FEET.

XXXIX. COOT	Common	<i>Br. Zool.</i> <i>Mus. Bl.</i>
XL. PHALAROPE	Grey Red. Brown	<i>ib.</i> <i>Edw.</i> 308 <i>Edw.</i> 142 <i>Edw.</i> 46
XLI. GREEBE	Eared Pied bill	<i>Edw.</i> 96 C. I. 91.

S E C T. VIII. WEBBED-FOOTED.

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XLII. FLAMMANT	Red	<i>Phoenicopterus ruber.</i> C. I. 73
XLIII. AUK	Great Razor Puffin New Little Guillemot Black	<i>Br. Zool.</i> <i>Edw.</i> 147 <i>ib.</i> <i>Edw.</i> 358 <i>ib.</i> <i>Edw.</i> <i>ib.</i> N. S. <i>Br. Mus.</i> <i>Br. Zool.</i> <i>Edw.</i> 91 <i>ib.</i> <i>Edw.</i> 359 <i>ib.</i>

XLIV.

XLIV. DIVER	Northern Immer Speckled Lumme	<i>Br. Zool. Mus. Bl.</i> <i>Colymbus Immer. Mus. Bl.</i> <i>Br. Zool. Mus. Bl.</i> <i>ib. Edw. 97. 146</i>
XLV. CUT-WATER	Black	<i>Rhynchos nigra. C. I. 90</i>
XLVI. TERN	Noddy Black Greater Lesser	<i>Sterna stolida. C. I. 88</i> <i>Br. Zool. Kalm.</i> <i>ib. Mus. Bl.</i> <i>ib. Mus. Bl.</i>
XLVII. GULL	Great Wagel Herring Kittiwake Laughing Black toed Arctic	<i>ib. Mr. B.</i> <i>ib.</i> <i>ib.</i> <i>ib.</i> <i>ib.</i> <i>ib.</i> <i>ib. Edw. 148, 149.</i>
XLVIII. PETREL	Fulmar Shear water Storm	<i>ib.</i> <i>ib. Edw. 359</i> <i>ib. Edw. 91</i>
XLIX. SAW-BILL.	Goosander Redbreasted Hooded Smew	<i>Br. Zool. Mus. Bl.</i> <i>ib. Edw. 95.</i> <i>Mergus cucullatus. Edw. 360</i> <i>Br. Zool. Mus. Bl.</i>
L. DUCK	Swan Canada Wild-goose White-fronted Blue Bernacle Brant Snow Eider King Velvet Black Shoveler Golden eye Harlequin	<i>ib. Edw. 150</i> <i>Anas Canadensis. Edw. 151</i> <i>Br. Zool.</i> <i>ib. Edw. 153</i> <i>A. cærulescens. Edw. 152</i> <i>Br. Zool.</i> <i>ib.</i> <i>Anser niveus. Br. VI. Lawson</i> <i>Br. Zool. Edw. 98</i> <i>A. spectabilis. Edw. 154</i> <i>Br. Zool. Mus. Bl.</i> <i>A. perspicillata. Edw. 155</i> <i>Br. Zool. C. I. 96. fæm.</i> <i>ib. Mus. Bl.</i> <i>A. histrionica. C. I. 98. fæm.</i> <i>[Edw. 99-157. Pied</i>

Pied	A. albeola.	<i>Edw.</i> 100
Pochard	<i>Br. Zool.</i>	<i>C. App.</i>
Pin-tail	<i>ib.</i>	<i>Mus. Bl.</i>
Swallow-tail	<i>ib.</i>	<i>Edw.</i> 280
Buffel	A. Bucephala.	C. I. 95
White-faced	A. discors.	C. I. 100
Ilathera	A. Bahamensis.	C. I. 93
Brown	<i>Mr. B.</i>	
Summer	A. sponsa.	<i>Edw.</i> 101. C. I. 97.
Widgeon	<i>Br. Zool.</i>	<i>Mus. Bl.</i>
Teal	<i>ib.</i>	<i>Mr. B.</i>
Blue-wing	C. I. 99.	
Mallard	<i>Br. Zool.</i>	<i>C. App.</i>
Scaup	<i>ib.</i>	<i>Mus. Bl.</i>

LI. PELECAN	Pelecan	<i>Edw.</i> 93.
	Corvorant	<i>Br. Zool. Mus. Bl.</i>
	Shag	<i>ib. C. App.</i>
	Gannet	<i>Mr. B. Br. Zool.</i>

CLASS III. REPTILES.

SECT. I. With FOUR FEET.

I. TORTOISE	Green	Testudo Mydas	C. II.	38
	Hawksbill	T. caretta		39
	Logger-head			40
	Trunk			
	Chequered	T. Carolina.	<i>Edw.</i> 205	
	Mud		<i>Edw.</i> 287	
	Rough?	T. scabra		
	Indented?	T. denticulata		
	River	N. S. <i>Dr. Garden</i>		

II. FROG	Bull	Rana ocellata.	C. II.	72
	Land		C.	69
	Water		C.	70
		B	Green	

Green.		C. 71
Horned	R. cornuta	
Striped	N. S. Mr. <i>Ellis</i>	

III. LIZARD	Allegator	Lacerta Crocodylus. C. II. 63
	Lion	L. sex-lineata 68
	Guano	L. Iguana 64
	Green	65
	Blue-tail	L. fasciata 67
	Spotted	L. punctata III. 10
	Canada	N. S. Mr. <i>Ellis</i>
	Annulated	<i>Mus. Bl.</i>

S E C T. II. With Two FEET.

IV. SIREN	Caroline	Siren Lacertina. <i>Ph. Tr.</i> LVI. 189
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S E C T. III. Without FEET.

V. SNAKE	Rattle	Crotalus horridus	C. II. 41
	Lesser	Cr. miliarius	C. 4
	Chequered	Cr. Durissus	
	† †		
	Hog-nose	Boa contortrix	C. 56
	† † †		
	Striped	Coluber leberis	
	Wampum	Coluber fasciatus	C. 58
	Green	C. ordinatus	53
	Chain.	C. getulus	52
	Ribbon	C. saurita	50
	Black	C. constrictor	48
	Bead	C. guttatus	60
	Familiar	C. æstivus	57
	Porraceous	C. myéterizans	47
	Crossed	Coluber simus	
	Smooth-headed	striatulus	
	Dotted	punctatus	
	Ringed	doliatus	
	Brown	sipedon	
	Yellow	fulvius	
	Vittated	sirtalis	
			Water

Water viper		C. 43
Black viper		44
Brown viper		45
Copper-bellied		46
Brown-bead		49
Speckled		51
Pensacola	N. S. <i>Mr. Ellis</i>	
Coach-whip	C. 54	
Corn	C. 55.	
little	<i>Edw.</i> 349	
	†	
Glass	Anguis ventralis	C. II. 59
	†	
	†	
	†	
Little Sloeworm	Cœcilia N. S. <i>Mr. Ellis</i> .	

CLASS IV. FISH.

SECT. I. CETACEOUS.

I. NARWHAL	Narwhal	
II. WHALE	Common	<i>Br. Zool</i>
	Pike-headed?	<i>ib.</i>
	Fin	<i>ib.</i>
	Beaked	<i>ib.</i>
III. CACHALOT	Blunt-headed	<i>ib.</i>
	High-finned	<i>ib.</i>
IV. DOLPHIN	Porpesse	<i>ib.</i>
	Grampus	

SECT. II. CARTILAGINOUS.

V. LAMPREY	Common	<i>Br. Zool.</i> <i>C. App.</i>
		B 2

VI. RAY

VI. RAY	Thorn-back Sting Devil-fish	<i>C. App.</i> <i>C. App.</i> <i>C. App.</i>
VII. SHARK	White ? Saw	<i>C. App.</i> <i>Squalus Pristis. C. App.</i>
VIII. FISHING FROG	Common	<i>Br. Zool. C. App.</i>
IX. STURGEON	European Blunt-nosed	<i>ib.</i> <i>Mus. Bl.</i>
X. BALISTES	Unicorn Hispid Old	B. monoceros. B. hispidus B. vetula.
XI. TETRODON	Smooth Globe Sun	T. lœvigatus T. lagocephalus <i>Br. Zool. C. App.</i>
XII. LUMP	Lump-fish	<i>Br. Zool.</i>
XIII. PIPE-FISH	Shorter	<i>ib.</i>

S E C T. III. BONY.

		*	APODAL.
XIV. EEL	Muray Eel Conger		Muræna Helena. C. II. 20. 21 <i>Br. Zool.</i> <i>ib.</i>
XV. SWORD	Sword-fish		<i>ib.</i>
XVI. COD	Common Frost Tau	* * *	JUGULAR <i>ib.</i> Gadus callarias. <i>Mus. Bl.</i> Gadus Tau.
XVII. BLENNY	pustulated		N. S. <i>Mr. B.</i>
XVIII. REMORA	Remora	* * *	THORACIC. Ech. neucrates. C. II. 26
XIX. CORYPHÆNE	Parrot Blue Lineated		C. Psittacus C. II. 18 C. lineata
			XX. BULL-

XX. BULL-HEAD	Father-lasher	<i>Br. Zool.</i>
XXI. FLOUNDER	Holibut Flounder Plaise Rough Sole Lineated Lunated	<i>Br. Zool.</i> <i>ib.</i> <i>ib.</i> <i>Pleuronectes plagiusa</i> <i>Br. Zool.</i> <i>Pl. lineatus</i> <i>Pl. lunata</i> C. II. 27
XXII. CHÆTODON	Scaleless Angel	<i>Ch. alepidotus</i> <i>Ch. triostegus</i> C. II. 31
XXIII. GILTHEAD	Lane-snapper Pork-fish Porgy Silver Radiated Virginian	<i>Sparus synagris</i> C. II. 17 <i>Sp. rhomboides</i> C. II. 4 <i>Sp. chrysops</i> C. II. 16 <i>Sp. argyrops.</i> <i>Sp. radiatus.</i> C. II. 12 <i>Sp. virginicus</i>
XXIV. WRASSE	Mutton Mangrove Hog Gaper Drum Yellow Cinereous Bone Great?	<i>Labrus anthias</i> C. II. 25 <i>L. griseus</i> C. II. 9 <i>L. flavus</i> C. II. 11 <i>L. hiatula</i> <i>L. chromis</i> C. App. XXXIII. <i>L. fulvus</i> C. II. 10 C. II. 11. fig. 2 C. II. 13 C. II. 15
XXV. PERCH	River? Yellow-bellied Dotted Whiting? Croker Eyed Noble Philadelphian Black Margate Negro Hind Venemous Black-tail	<i>Br. Zool.</i> C. App. <i>Labrus auritus.</i> C. II. 8 <i>Perca punctata</i> <i>P. alburnus.</i> C. II. 12 <i>P. undulata</i> C. II. 3. <i>P. ocellata</i> <i>P. nobilis</i> <i>P. Philadelphica</i> <i>P. atraria</i> <i>P. chrysoptera</i> C. II. 2 <i>P. punctata</i> C. II. 7 <i>P. guttata</i> C. II. 14 <i>P. venenosa</i> C. II. 5 <i>P. melanura</i> C. II. 7 B 3 Rudder

	Rudder Striated Grunt Trifurcated Bass? Apodal	P. se ^c tatrix C. II. 8 P. striata P. formosa C. II. 6 P. trifurca <i>Br. Zool. C. App.</i> XXXIII. C. II. 4.
XXVI. STICKLE-BACK	Crevalle Canada Skip-Jack Two-spined	Gasterosteus Carolinus G. Canadus G. Saltatrix. C. II. 14 <i>Mus. Bl.</i>
XXVII. MACKREL	Yellow-tail	Scomber Hippos
XXVIII. GURNARD	Flying Rough	Trigla evolans N. S. <i>Mus. Bl.</i>
	* * * *	
		ABDOMINAL.
XXIX. LOCH	Beardless	Cobitis heteroclitia
XXX. AMIA	Mud-fish	Amia calva
XXXI. SILURE	Cat Armed	Silurus felis. S. catus. C. II. 23 S. cataphractus. C. III. 19
XXXII. TROUT	Salmon Trout White fish Long	<i>Br. Zool.</i> <i>Br. Zool.</i> <i>Mr. B.</i> Salmo lavarettus? S. fœtens. C. II. 2
XXXIII. PIKE	Fox Green Sea-needle Under-jaw Barracuda Common	Esox vulpes. C. II. 1. E. Osseus. C. II. 30 <i>Br. Zool</i> E. Brasiliensis. <i>Mr. B.</i> C. II. 1 <i>Br. Zool.</i> <i>C. App.</i>
XXXIV. ELOPS	Forked	El. Saurus
XXXV. ARGENTINE	Caroline	Arg. Carolina. C. II. 24 * * Perhaps a herring.
		XXXVI.

XXXVI. AATHERINE	Silver-fish	Ath. menidia
XXXVII. MULLET	White Common	Mugil albula. C. II. 6 <i>Br. Zool.</i> <i>C. App.</i>
XXXVIII. POLYNEME	Virginian	P. Virginicus
XXXIX. HERRING	Common Shad	<i>Br. Zool.</i> <i>ib.</i> <i>C. App.</i> XXXII
XL. CARP.	Common Roach Dace Mummy-Chog.	<i>Br. Zool.</i> <i>C. App.</i> <i>ib.</i> <i>ib.</i> <i>ib.</i> <i>ib.</i> N. S. <i>Mus. Bl.</i>

C L A S S V. I N S E C T S.

S E C T. I. B E E T L E S.

*

I. CHAFER	Scarabæus lunaris.	<i>Mus. Bl.</i>
	aloëus	
	lancifer	
	nasicornis	
	Carolinus	
	mimas	
	carnifex	
	nuchicornis	
	Marianus	
	stercorarius	
	Amazonus	
	Surinamus	
	nitidus	
	sepicola	
	horticola, a variety	
	occidentalis	
	lanigerus	
	fasciatus	
	Indus	
	brunnus	
	punctatus	

		nobilis quadrimaculatus Hudsonias. <i>Drury</i> t. 35. f. 7 N. <i>S. Mus. Bl.</i> rufus. N. S. <i>Mus. Bl.</i> lævipes. N. S. <i>Mus. Bl.</i> piceus. N. S. <i>Mus. Bl.</i> biunguiculatus. N. S. <i>Mus. Bl.</i> pilosus. N. S. <i>Mus. Bl.</i> testaceus. N. S. <i>Mus. Bl.</i>
II. STAG-BEETLE	Lucanus	cervus capreolus interruptus — — — <i>N. B.</i> a brown variety
III. LEATHER-EATER	Dermestes	lardarius capucinus typographus fasciatus. N. S. <i>Mus. Bl.</i>
IV. MIMICK-BEETLE	Hister	unicolor
V. WHIRL-BEETLE	Gyrinus	Americanus
VI. CARRION-BEETLE	Silpha	vespillo. <i>N.B.</i> a great variety, and the small one too noveboracensis. N. S. <i>Mus. Bl.</i> bipustulata quadripustulata Americana obscura aquatica
VII. WEEVIL	Curculio	noveboracensis. N. S. <i>Mus. Bl.</i> palmarum Bacchus dispar anchoraco nucum incanus scutellatus. N. S. <i>Mus. Bl.</i>
VIII. NUT-BEETLE	Attelabus	curculionoides Pensylvanicus.
		IX. LADY-

IX. LADY-FLY	Coccinella	impunctata 7-punctata 13-punctata 2-pustulata * *
X. GLOW-WORM	Lampyris	Pyralis marginata pilosa. N. S. <i>Mus. Bl.</i>
XI. SEED-BEETLE	Bruchus Pisi	<i>Kalm I.</i> 173—177
XII. GOLDEN-HONEY-BEETLE	Chrysomela	5-punctata occidentalis Boleti Philadelphica 3-maculata Americana lineola bicolor, variety with red thighs, <i>Mus. Bl.</i> scopolina obscura 10-maculata 12-punctata Phellandrii tomentosa Rhoi. N. S. <i>Mus. Bl.</i> spinicornis. N. S. <i>Mus. Bl.</i> lepturoides. N. S. <i>Mus. Bl.</i> lineato-punctata. N. S. <i>Mus. Bl.</i> trifurcata. N. S. <i>Mus. Bl.</i> laticlavia. N. S. <i>Mus. Bl.</i> fimbriata. N. S. <i>Mus. Bl.</i> frontalis. N. S. <i>Mus. Bl.</i> Hudsonias. N. S. <i>Mus. Bl.</i>
XIII. BLISTER-BEETLE Meloë		vesicatorius majalis cinerea. N. S. <i>Mus. Bl.</i>
XIV. STINKING-BEETLE Tenebrio		chalybeus Mauritanicus culinaris

		culinaris fossor
XV. TORTOISE-BEETLE	Cassida	viridis bipustula? <i>Mus. Bl.</i>
	*	*
XVI. GLOSSY-BEETLE	Cicindela	hybrida Germanica riparia
XVII. GROUND-BEETLE	Carabus	granulatus, γ. hortensis leucophthalmus inquisitor lividus, small variety marginatus crepitans Americanus cyanocephalus vulgaris piceus sericeus. N. S. <i>Mus. Bl.</i> fasciatus. N. S. <i>Mus. Bl.</i>
XVIII. BURN-COW	Buprestis	gigantea mariana chrysostigma Austriaca
XIX. SPRING-BEETLE	Elater	oculatus phosporeus ligneus? obscurus
XX. WATER-BEETLE	Dytiscus	fuscipes marginatus
XXI. SOFTWINGED-BEETLE	Malacoptyryx Cantharis	Americauus. N. S. <i>Mus. Bl.</i> tropica
XXII. WOOD-BEETLE	Leptura	mystica detrita
		Robiniae.

XXIII. CAPRICORN-BEETLE.	Cerambyx	Robiniæ. <i>Drury.</i> t. 41. f. 2.
		N. S. <i>Mus. Bl.</i>
		Americana. N. S. <i>Mus. Bl.</i>
		nitens
		imbricornis
		coriarius, variety
		melanopus
		lineatus
		spinibarbis
		araneiformis
		4-maculatus
		succinctus
		suaveolens
		Coquus
		hispicornis. <i>Drury.</i> t. 41. f. 4.
		rusticus
		bajulus
		tetraphthalmus. N. S. <i>Mus. Bl.</i>
		brunnus. N. S. <i>Mus. Bl.</i>
		palliatus. N. S. <i>Mus. Bl.</i>
		clavipes. N. S. <i>Mus. Bl.</i>

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XXIV. ROVE-BEETLE	Staphylinus	hirtus
		erythropterus

XXV. CLIPT-WINGED BEETLE	Necydalis	collaris. N. S. <i>Mus. Bl.</i>
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XXVI. EARWIG	Forficula	auricularia
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S E C T. II. HALFWINGED INSECTS.

XXVII. COCKROACH	Blatta	Americana
		Orientalis
		Germanica
		livida. N. S. <i>Mus. Bl.</i>

XXXVIII. CAMELCRICKET	Mantis	irrorata
		Carolina

XXIX. LOCUST	Gryllus	brevicornis
		gryllotalpa
		campestris

citrifolius

		citrifolius laurifolius myrtifolius ? succinctus cristatus Carolinus
XXX. FLEA-LOCUST	Cicada	squamigera tibicen septendecim violacea spumaria phalænoides Lanio carinata. N. S. <i>Mus. Bl.</i> guttata. N. S. <i>Mus. Bl.</i> coccinea. N. S. <i>Mus. Bl.</i>
XXXI. BOAT-FLY	Notonecta	glaуca lineata. N. S. <i>Mus. Bl.</i>
XXXII. WATERSCORPION	Nepa	grandis
XXXIII. BUG	Cimex	lecticularis. <i>Kalm.</i> bidens ictericus floridanus haemorrhous baccarum prasinus biguttatus, variety with red dots and marges cristatus trifasciatus succinctus lacustris
XXXIV. PLANTSUCKER	Chermes	Alni. <i>Kalm</i>
XXXV. COCHINEAL	Coccus	Caeti. <i>Bartram's Florida</i>

S E C T. III. PAPILIONACEOUS. INSECTS.

XXXVI. BUTTERFLY	Papilio	Troilus. <i>Drury.</i> t. 11. f. 1—5? Ajax. <i>Edw.</i> 34. Xuthus. <i>Drury.</i> t. 22. f. 1. 2. Antilochus Podalirius Protesilaus. <i>Drury.</i> t. 22. f. 34. Apollo. <i>Mus. Bl.</i> Brassicæ Hyale Eubule Ecclipsis Midamus Plexippus Misippus Chrysippus Canthus Almana Orithya Cardui Antiope. <i>Kalm.</i> urticæ C. album. Atalanta Euphrosyne. <i>Kalm.</i> Cupido quercus Echion Virgaureæ Bixæ
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XXXVII. HAWK-MOTH	Sphinx	ocellata Populi Carolina Celerio Pinastri fuciformis. β . Tityus
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XXXVII. MOTH	Phalæna	Atlas Cecropia Paphia
		Luna

Luna
Virgo
Plantaginis
Chrysorrhœa
lubricipeda
paranympha
Gamma
Psi
bilineata
viridana
bella
pulchella

S E C T. IV. INSECTS with nervous Wings.

XXXIX. DRAGON- FLY	Libellula	flaveola depressa ænea umbrata Americana Carolina
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XL. CAMEL-FLY	Raphidia	cornuta
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XLI. SPRING-FLY	Phryganea	bicaudata
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XLII. PEARL-FLY	Hemerobius	pectinicornis
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XLIII. SCORPION- FLY	Panorpa	communis
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S E C T. V. INSECTS with Stings.

XLIV. BEE	Apis	cordata mellifica rostrata violacea Carolina pratorum æstuans noveboracensis N. S. <i>Mus. Bl.</i> vespiformis. N. S. <i>Mus. Bl.</i> sericea. N. S. <i>Mus. Bl.</i>
		XLV.

XLV. ANT	Formica	herculeana rufa
XLVI. WASP	Vespa	Carolina maculata. <i>Mus. Bl.</i> annularis quadridens Canadensis
XLVII. GOLDEN WALL-FLY		Chrysis cyanea
XLVIII. TAILED WASP	Sirex	Columba. <i>Mus. Bl.</i>
XLIX. SAW-FLY	Tenthredo	scrophulariae lutea viridis
L. ICHNEUMON WASP	Sphex	fabulosa cœrulea Pensylvanica arenaria
LI. ICHNEUMON- FLY	Ichneumon	luteus
LII. NAKED BEE	Mutilla	occidentalis

S E C T. VI. Two-winged INSECTS.

LIII. GNAT	Culex	pipiens. <i>Musquito</i> pulicaris
LIV. WASP-FLY	Asilus	æstuans gibbosus
LV. FLOWER- BREEZE	Bombylius	minor. <i>Mus. Bl.</i>
LVI. HORSE-FLY	Hippobosca	hirundinis. <i>Mus. Bl.</i>

LVII.

LVII. FLY	Musca	illucens. Drury, t. 44. f. 1. <i>M. Bl.</i> leucopa vomitoria carnaria domestica
LVIII. WHAME	Tabanus	Americanus. N. S. <i>Mus. Bl.</i>
LIX. GADFLY	Oestrus	Tarandi

S E C T. VII. INSECTS without Wings

LX. SUGARMITE	Lepisma	faccharina
LXI. GROUND-FLEA	Podura	aquatica
LXII. DEATH-WATCH	Termes	pulsatorium
LXIII. LOUSE	Pediculus	humanus ricinoides suis cervi meleagridis
LXIV. FLEA	Pulex	irritans penetrans. <i>Chigger</i>
LXV. TICK	Acarus	Americanus Siro holosericeus
LXVI. LONG-LEGGED SPIDER	Phalangium	grossipes opilio acaroides balænarum reniforme
LXVII. SPIDER	Aranea	diadema clavipes venatoria
LXVIII. SCORPION	Scorpio	Americanus australis. <i>Mus. Bl.</i>

LXIX. CRABFISH.	sentry minute land florid Sand common roughshelled spider dotted rock redclawed	Cancer pinnophylax C. minutus. <i>Kalm.</i> C. ruricola. <i>Cat. II. 32.</i> C. floridus C. vocans. <i>Cat. II. 35.</i> C. mænas. <i>Mr. B.</i> C. granulatus. <i>Cat. II. 36. N° 2.</i> C. araneus. <i>Mr. B.</i> C. punctatus C. Grapsus. <i>Cat. II. 36. N° 1.</i> <i>Cat. II. 37. f. 1.</i>
LXX. LOBSTER	common cynic Soldier Cray	Cancer Gammarus C. Diogenes. <i>Cat. II. 33. f. 1. 2.</i> <i>Cat. II. 34</i> C. carcinus
LXXI. MONOCULE	King's Crab	Monoculus Polyhemus. <i>Mus. Bl.</i>
LXII. MILLEPEE	Oniscus	Oestrum. <i>Mus. Bl.</i> Physodes. <i>Mus. Bl.</i> Ceti Asellus
LXXIII. CENTIPEE	Scolopendra	forficata morsitans. <i>Cat. II. 2.</i> occidentalis marina
LXXIV. GALLYWORM	Julus	crassus

T E S T A C E O U S.

REFERENCES to American Shells, engraved in Lister's
Hist. Conch.

LAND	N° 19	Sea Bivalves.	N° 34. 279
	45		196. 358
	69		200. 434
	82		277. 436
	91	Sea turbinate.	855. a. 12
	92		1058.—10
	93		1059—2
	94		4
RIVER	3 River Bivalve	5	
TURBINATED	4	6	
	5	9	
	6	10	
	7	15	
	8		
	35		
	44		
	45		
	46		

SHORT

S H O R T D I R E C T I O N S

For LOVERS and PROMOTERS of

N A T U R A L H I S T O R Y,

In what manner Specimens of all Kinds may be collected, preserved, and transported to distant Countries.

I. **A**LL Quadrupeds of a great bulk must be skinned as soon as possible after death; the tail, claws, teeth, horns, ears, bristles on the nose and chin, are carefully to be preserved; the hair of the fur as little stained with blood as possible; the opening is to be as small as it can conveniently be without hindering the operation; the inside of the skin may then be washed or brushed over with a liquor, made of an ounce of Sal Ammoniac, dissolved in a quart of water, in which afterwards two ounces of corrosive sublimate Mercury must be put: or four ounces of Arsenic may be boiled in two quarts, or two quarts and a half of water, till all or the greater part of it be dissolved, and the liquor may serve for the same purpose to wash the inside of the skin: then the whole cavity must be stuffed with oakum or tow, likewise imbibed with the above liquor, afterwards dried and mixed

with a powder of four parts of Tobacco-sand, four parts of pounded black Pepper, one part of burnt Alum, and one part of corrosive Sublimate or Arsenic: lastly, the whole is to be sewed with a thread dipt in the above liquor, and the skin thus stuffed must be gently dried, and a day after put into an oven, whose heat must be so gentle, that a hair, or a feather put for trial's sake into it, will not crisp, or curl, or bend; and thus it will be perfectly dried: the eyes may be filled up with putty, which, when dry, will look like the white part of an eye, and will bear painting, to express with oil-colours the iris and pupil of the natural eye of the animal in question. The whole animal must be put into a box, filled with tow or moss, or oakum steeped in the above liquor, and perfectly dried. The box must be brushed over on both sides with the above liquor, and dried; and the crevices shut up with pieces of paper pasted over; the paste must be made either with the arsenical liquor, or that made with corrosive sublimate instead of common water; and I can assure these precautions, though cheap and simple, will keep the animal in the best preservation on the longest voyages, and for many years in a collection. This way of preparing and securing the boxes for sending specimens abroad, the prepared oakum or tow, the powder and liquor mentioned above, are always to be understood when I afterwards speak of prepared boxes, prepared tow, moss, or oakum, and preparing powder or liquor.

II. Small Quadrupeds may be plunged into a keg of brandy, rack or rum, and thus sent over: observe however to put them first into the coarser kind of spirits; and after they have been therein for a while, and parted with some impurities, you must put them into another vessel with new clean rum or brandy, into which some alum may be put; and they will keep thus better, and be less subject to change or decay.

III. Birds must be opened at the vent, their entrails, lungs,

lungs, and craws taken out, washed with the above preparing liquor, strewed with the preparing powder, stuffed with the prepared oakum or tow; their plumage kept clean during the operation, sewed up with thread steeped in the preparing liquor; the eyes taken out, with the tongue, and both places washed with the same liquor; the mouth must be filled with prepared tow in great birds; the eyes filled up with putty, and, when dry, painted with oil-colour after the natural colour of live birds of the same species, and then dried in an oven: however, as there is all the meat on the bird left, care must be taken not to take too plump or too fat birds, and dry them slowly under the same precaution as mentioned N^o. I. The operation must be repeated till the bird be perfectly dry. The attitude may be given to the bird before he be put into the oven, by wires that are sharp on one end, and thrusted through the bird's legs, body, breast, and neck, and others going through the wings and body. Small birds are likewise well preserved in brandy, rack, or rum; and when arrived at the place of their destination, they must be washed and sweetened in fresh water for several times, and lastly dipped in the preparing liquor, the plumage laid in order, the attitude given to the bird by wires, and then dried. Care must be taken to kill the birds with shot proportioned to their size, and at a reasonable distance, that the specimen may not be mangled and torn. Young birds which have not yet moulted, must not be taken, but old birds in full feather, and, if possible, a specimen of each sex; for the sexes often vary very much in size, feather, and colour. The nests of birds and their eggs would likewise contribute towards perfecting the history of this branch of zoology.

IV. All kinds of Reptiles, as snakes, lizards, and frogs, and small tortoises, must be put into brandy or rum with alum in it: observe not to take such snakes or lizards as have accidentally lost their tails: the scales of these animals must be carefully preserved.

V. Fish

V. Fish of all denominations will likewise bear sending in bottles or kegs with brandy or rum. The fins, and tails of the fish, their scales, and in some kinds, the beards, or other small characteristic appendages, must not be rubbed, torn, or destroyed.

VI. Insects may be caught in a pair of forceps covered with fine green or white gauze, which for better security may be sewed over either with silk or thread. The collector must have a pincushion, with three or four different sizes of pins, calculated for the different sizes of the insects; one or two chip-boxes lined on top and bottom with cork, all steeped in the preparing liquor; one or more larger store-boxes at home to put therein the insects caught in the various excursions; a large Muscheto gauze-net made in the shape of a bat fowling-net, which is to be got ready made in London; and a thread net with small meshes on a round wire hoop fixed to a long pole, in order thus to catch insects that live in water. With these instruments all insects may easily be caught. The beetles must have the pin run through one of their wing-shells; the half-winged insects through the thorax, and so likewise must be done to butterflies, hawk-moths, and moths, to the insects with four and two membranaceous wings, and some of the insects without wings. As the papilionaceous insects very frequently beat their wings, and thus rub off the fine scales covering them, it is necessary to give these creatures, when in the forceps or net, a gentle squeeze at the insertion of the wings in the body, and to put them, when returned home from an excursion, on a large pincushion, by which means they will be enabled to rest their feet on, and this will prevent their fluttering. Beetles, and many of the half-winged insects, may be dipped in the preparing liquor, which will kill and put them soon out of pain and prevent small insects from destroying them. The greater part of beetles may with as great propriety be plunged into a bottle,

bottle, with rum or rack, and thus sent over. This can likewise be done with all marine insects, small crabs, millepees, centipees, spiders, gally worms, scorpions, &c. and many curious grubs or caterpillars, which are the first state which beetles and butterflies, moths, &c. live in. To each insect, not in spirits, put a small paper, on which is marked the time of the year it is caught in, the plant or food it lives upon, its changes, and what animals feast again upon the insect, and other such particularities.

VII. The shells, both those found in fresh water-lakes, ponds, and rivers, and those that live only in the ocean, must not be chosen among those that lie on the shores of the sea and fresh waters, and have been broken and injured, or rolled by the waves and exposed to the air and sun and thus calcined; but rather as fresh as possible, and with the animal in it: one or two specimens of which may be preserved in Spirits: from the rest extract the animal, and keep the shell, when perfectly dry and sweet, packed up in cotton, tow, or moss. The same is to be done with the echini or sea-eggs, and other crustaceous animals; especially be careful to preserve their curious spines.

VIII. The harder and stone-like animal productions of the sea, comprehended under the names of Madrepores, Millepores, Cellepores, Corals, and Gorgonias, are either without its inhabitants, and then they want no other care but a good packing in cotton or tow; or the animal is still alive, and then it would be necessary to put the specimen in a flat vessel filled with Sea-water, and to watch the moment when the animal puts out its arms or branches, and then to pour instantly a good quantity of strong spirit into the water, so that the acid of the liquor may prevent the animal from drawing in its branches or arms: after this, the animal may be
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put into another glass, with new rum poured on it; the glass must be well corked, and covered with putty and a bladder. All the alcyoniums, sponges, hornwracks, pipe-corals, coralines, sea-feathers, and other curious zoophytes, must be treated in the same manner; as this would be a means to acquaint us with the various inhabitants of this curious tribe of marine productions.

IX. The various worm-like animals comprehended under the name of *Mollusca*, may be best preserved in rum or brandy: only observe to pour the rum on them, when they are putting out their arms, eyes, horns, tentacula, and other parts of their frame.

X. To the quadrupeds, birds, reptiles, fish, and in general to all the specimens, must be fixed lead tickets by means of a wire, and a number on the lead scratched in; which must be referred to, in a paper, where under the same number the collector would be pleased to write the name by which the animal goes in his country, or among the various tribes of Indian nations, with the food, age, growth, nature, manners, haunts, how many young or eggs it brings forth, in what manner it is caught, what it is used for, &c. &c.

XI. The vegetable world affords such an immense variety of productions of so great and varied uses for the various purposes and wants of human society; that it would be rather blameable in men to be indolent in respect to them. Old England can justly glory in being possessed of the greatest variety of plants of all kinds; but even these glorious and spirited efforts in this branch of knowledge, are not yet sufficient to make us acquainted with all the productions of the vegetable kingdom, and their various uses. Besides this, their cultivation at large is often impossible in our cold climate, and reserved for a more mild and happy one,
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beyond the Atlantic: nothing is therefore more necessary than to facilitate the transportation of seeds and plants into distant countries in a state of vegetation. The ingenious and great promoter of natural history, John Ellis, Esq; has favoured the world with a curious pamphlet, containing the best directions for that purpose; it would be therefore superfluous to repeat what he has already said, were it not necessary to make my performance more compleat, by inserting a few hints abstracted from his useful publication; and adding to it some remarks of my own.

Seeds of all kinds, intended to be sent abroad, must be collected perfectly ripe in dry weather, and kept dry without exposing them to sunshine. Hard nuts, and leguminous seeds, may be plunged for a moment in the preparing liquor and then dried again, as this would prevent insects from attacking them. In general must the seeds be previously examined, and care taken that no insects may be sent with them; this can sometimes be discovered by the naked eye, sometimes by a magnifying glass, and by a little brown or black spot on the outside of the seed; such ripe and chosen seeds, if of a good size, each of them may be wrapped in a flat piece of bees-wax; if small or quite minute, many may be put together in such a piece of bees-wax, or, what is still better, in a piece of cerate paper, i.e. paper steeped in melted bees-wax, and all these parcels must be put in a pot or box, proportionate to the quantity of seeds you have, filled with melted wax, to the height of about the size of the seeds you are to send, or the parcels you have made; and when the wax is pretty cool, but still soft, lay your seeds or parcels in rows in the soft wax, and then fill again some melted wax in, and proceed to lay seeds in the same manner till your pot or box be full. Pulpy seeds, as those of strawberries, mulberries, arbutus's,

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may be squeezed together, pressing out the watery particles, drying these small cakes, and then putting them in the abovementioned cerate paper. Or small seeds mixed with dry sand, and put in cerate paper, packed in proportionate glasses, and covered with a bladder or leather, and all such glasses again packed in a vessel, filled with a mixture, consisting of half culinary salt, the other half of two parts of saltpetre, and one part of sal ammoniac, will keep the seeds cool, and preserve their vegetative power.

Plants or shrubs that are to be transported, must be taken out with a lump of soil covering the roots, which must be wrapped in wet moss, surrounded with paper or a Russian bast-mat and packthread; plants thus packed may be put in a chest or box upon a layer of three inches deep wet moss in close rows, filling up all vacancies with moss. Some holes or slips in the lid of the box, covered with bast-mats or sail-cloth, will give them air, and a direction must be fixed on top, to keep the lid uppermost, and the box in an open but shady airy place, out of the spray of the sea: the same caution, in regard to air and sea, must be taken with the boxes containing seeds.

XII. Minerals, fossils, and petrefactions of all kinds, ought to be wrapt separately in papers, and the whole collection packed in hay, tow, hemp, or cotton, in a box, so that none of the specimens may touch or rub one another when the box is transported by land-carriage, or shaken by the rolling of the sea. Clays, earths, sands, and salts, are best preserved in glasses, or little glazed gally-pots covered with a bladder. Mineral waters may be safely filled in glass bottles, immediately after corked up and pitched, or covered with putty round the cork.

XIII. Though antiquities are no ways in connection with Natural History, it will however, be very acceptable, if the curious of North America will collect and communicate to their friends in Great Britain, all the inscriptions, arms, vases, utensils, idols, and other things, found in that continent, capable of throwing a light on the history and antiquities of its first inhabitants.

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THE WILLUGHBY SOCIETY.

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The late and present EDITORS of "The Ibis" and Mr TEGETMEIER were requested to form an Organising Committee to promote this object, and Mr F. GODMAN to act as Secretary.

The Committee thus appointed met at 11, Hanover-square, on June 4, 1879, when it was agreed :—

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- II. "That the Annual Subscription be £1, payable to the Secretary."
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DESFONTAINES' "Mémoire sur quelques nouvelles espèces d'oiseaux des côtes de Barbarie," from "Hist. de l'Acad. des Sciences," 1787. Edited by Professor Newton, F.R.S.

SIR ANDREW SMITH's "Miscellaneous Ornithological Papers." Edited by Os. Salvin, F.R.S.

A. A. H. LICHTENSTEIN's "Catalogus rerum naturalium rarissimarum." Hamburg: 1793. Edited by W. B. Tegetmeier, F.Z.S.

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SCOPOLI's "Deliciae Floraæ et Faunaæ Insubricæ" (the portion relating to birds). Edited by Professor Newton, F.R.S.

FORSTER's "Catalogue of the Animals of North America." Edited by P. L. Sclater, F.R.S.

FORSTER's "Account of Birds sent from Hudson's Bay." Edited by P. L. Sclater, F.R.S.

LEACH's Catalogue of the Mammalia and Birds in the British Museum. Edited by W. B. Tegetmeier, F.Z.S.

The following works are under consideration as suitable to the operations of the Society.

WAGLER's Ornithological papers from the "Isis."

HODGSON's papers in the "Indian Review" and "Asiatic Researches."

SAVIGNY and AUDOUIN's Ornithology of Egypt. The complete text in 8vo.

VIEILLOT's "Analyse d'une nouvelle ornithologie."

BARRÈRE'S "Ornithologæ specimen novum."

MÖHRING'S "Avium genera."

BECHSTEIN's papers in the "Naturforscher."

TEMMINCK's "Catalogue Systématique du Cabinet d'Ornithologie."

SGANZIN's "Notes sur l'Ornithologie de Madagascar," from the Mém. de la Soc. d'Hist. Nat. de Strasbourg.

Ornithological papers by RAY and LISTER in the "Philosophical Transactions."

SCHWENCKFELD's "Aviarium Silesiacum."

Ornithological papers in the Transactions of the Academy of Sciences of St Petersburg.

Ornithological portion of the Appendices to the "Reise" of PALLAS, S. G. GMELIN, and other Russian Travellers.

CHARLETON's "Onomasticon."

TURNER's "Avium &c. brevis et succincta Historia."

BARTON's "Fragments of the Natural History of Pennsylvania."
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